GROUNDWATER & LANDFILL GAS MONITORING REPORT NO. 10
THE FORMER PORTSMOUTH LANDFILL
PARK AVENUE
PORTSMOUTH, RI 02871

ATC PROJECT NO. 3010000238

PREPARED FOR:

AP ENTERPRISE LLC
28 TEAL DRIVE
WAKEFIELD, RHODE ISLAND 02879

PREPARED BY:

ATC GROUP SERVICES LLC
400 RESERVOIR AVENUE, SUITE 3D
PROVIDENCE, RHODE ISLAND 02907

NOVEMBER 15, 2019

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1.0 INTRODUCTION

ATC Group Services LLC (ATC) was retained by AP Enterprise to install four (4) groundwater monitoring wells and a total of eleven (11) landfill gas monitoring points, and to conduct quarterly groundwater and landfill gas monitoring at the former Portsmouth Landfill located on Park Avenue in Portsmouth, Rhode Island (the Site). The objective of this work is to support the Rhode Island Department of Environmental Management (RIDEM) approved Site Monitoring Plan as prepared by Tim O'Connor & Company LLC. This is the tenth quarterly report prepared by ATC.

1.1 Site Location and Description

The entrance to the former Portsmouth Landfill is located 500 feet west-northwest of the intersection formed by Boyds Lane and Park Avenue. The property is identified by the Portsmouth Tax Assessor as Plat 20 Lots 1, 2 & 13 and Plat 25 Lot 2 (the Site). The Site encompasses approximately 15.02 acres. The ground surface is generally level, with downward slopes along the landfill margins. A Site Locus Map and a Site Plan are included as **Figures 1 and 2** respectively.

On April 25, 2017, four soil borings were completed as groundwater monitoring wells MW-1, MW-2, MW-3 and MW-4. The four groundwater monitoring wells were constructed using two-inch diameter polyvinyl chloride (PVC) riser and 10 to 15 feet of machine-slotted 0.01 inch well screen. The well screens were placed to intercept the groundwater table. Groundwater monitoring well locations are depicted on **Figure 2**.

2.0 FIELD ACTIVITIES

The following activities were conducted to evaluate the potential presence of contamination in soil gas and groundwater as a result of historic landfill activities.

2.1 Monitoring Well Gauging and Area Groundwater Flow

On October 30, 2019, ATC gauged depth to groundwater in the four groundwater monitoring wells using a Solinst electronic oil/water interface probe. Depth to groundwater was measured from the top of the PVC well risers and ranged from 6.81 feet below top of casing in MW-1 to 14.53 feet below top of casing in MW-3. Non-aqueous phase liquids were not detected on the groundwater surface, or in the bottom of the wells. Based upon the groundwater elevation data, the groundwater gradient is generally toward the west. A Water Level Gauging Sheet is provided as **Table 1**. Groundwater Contours are included on **Figure 2**.

2.2 Groundwater Sampling and Analysis

On October 30, 2019, ATC completed the tenth quarterly groundwater sampling round. The groundwater samples were obtained using the USEPA's Low Stress Purging and Sampling Procedure (EQA SOP-GW-001). ATC used a variable speed low-flow peristaltic pump to control the rate of purging and limit the drawdown. Disposable polyethylene tubing was used at each well. Field parameters were recorded during sampling using a YSI Pro Series with flow-through cell and LaMotte turbidity meter. Field parameters included pH, water temperature, specific conductance, oxidation reduction potential (ORP) and dissolved oxygen. The groundwater samples were collected upon parameter stabilization, and contained in laboratory grade pre-

preserved sample containers. The samples were chilled in a cooler and transported under Chain of Custody to ESS Laboratory, a Rhode Island certified laboratory. ESS analyzed the samples for volatile organic compounds (VOCs) by EPA Method 8260, and total metals by EPA Methods 6010 and 7010.

2.3 Groundwater Analytical Results

No VOCs or metals were reported in excess of the RIDEM GA Groundwater Objectives, in the groundwater samples obtained on October 30, 2019. Previously, lead exceedances have been reported in groundwater samples from well MW-3. A cadmium exceedance was previously recorded in groundwater from MW-4. The groundwater analytical data is summarized on **Table 2**. The laboratory analytical report is included in **Appendix A.**

2.4 Soil Gas Point Installation

Four permanent SGPs (SG-1, SG-2, SG-3 and SG-4) were installed in April of 2017. Each of the four SGPs were installed in the unsaturated zone, using a Geoprobe brand 21" stainless soil gas implant. The depth of placement was determined by the existing depth to groundwater at each location, which ranged from approximately four to ten feet below grade. Each SGP was backfilled with uniform grade, silica sand to approximately one foot above the screen section. Approximately one foot of bentonite was placed above each SGP to seal it from surface water intrusion. Each SGP was connected to 3/8" by 1/4" tubing that was brought to the ground surface. At the ground surface, the SGP tubing was protected by a two-inch, by five-foot lockable standpipe cemented at grade.

At the request of RIDEM, AP Enterprise directed ATC to install an additional seven permanent soil gas points (SGPs) along the Site boundary, near monitoring point SG-3. SG-3 is the only SGP to have exceeded methane's lower explosive limit (LEL) of 5% and the RIDEM limit of 25% of the LEL (1.25%). On April 13, 2018, ATC installed seven peripheral SGPs (SG-5, SG-6, SG-7, SG-8, SG-9, SG-10 and SG-11), located every 50 feet along the edge of the Site boundary near SG-3. The seven SGPs were installed in the vadose zone to a depth of 2.5 feet below grade using a slam bar and ¼ inch OD polyethylene tubing terminating with an AMS slotted stainless steel soil gas point. The SGPs were secured at grade with a small concrete pad.

The eleven (11) peripheral SGPs are positioned to monitor for potential landfill gas migration away from the solid waste mound. These points are positioned between the landfill mound boundary and the nearby habitable structures. SGP locations are shown on **Figure 2**.

2.5 Soil Gas Monitoring

On October 30, 2019, ATC conducted the tenth quarterly round of landfill gas monitoring. Soil gas methane, hydrogen sulfide, oxygen and carbon dioxide concentrations were measured at the monitoring points using a Landtech Gem 5000 Landfill Gas Analyzer. Additionally, ambient temperature, barometric pressure, wind speed and wind direction were measured and recorded. SGPs are depicted on **Figure 2**. The soil gas monitoring results are summarized on **Table 3**.

The soil gas point stand-up well protector at SG-1 was found to be laying on the ground during the July 2019 monitoring event, but had since been repaired and was upright on October 30, 2019. However, no flow was achieved through the tubing and, consequently, no soil gas readings

were obtained at SG-1 on October 30, 2019. No methane was detected at SG-1 during any of the previous successful monitoring events.

On October 30, 2019, methane was detected in monitoring point SG-3 at a concentration of 10.7%, which is within the methane lower and upper explosive limits of 5% and 15%. The seven fence-line perimeter monitoring points located near SG-3 (SG-5 through SG-11) were "non-detect" for methane. All of the remaining monitored soil gas points were also "non-detect" for methane. Therefore, the measured methane concentrations in the perimeter monitoring points did not exceed the RIDEM Solid Waste Regulation No. 2, Section 2.3.08 (d), of 25% of the LEL (1.25%) at the Site boundary.

Hydrogen sulfide was detected at monitoring point SG-3 only, at 4% (similar to previous concentrations at SG-3). The soil gas point carbon dioxide concentrations ranged from less than 0.2% to a maximum of 14.4% at location SG-3. The oxygen concentrations ranged from atmospheric (approximately 20.9%) down to 0.2% at SG-3. The soil gas monitoring results are summarized in **Table 3**.

3.0 CONCLUSIONS

ATC has performed the tenth quarterly groundwater and landfill gas monitoring on October 30, 2019, at the former Portsmouth town landfill on Park Avenue in Portsmouth, Rhode Island. Based upon the scope of work and sampling activities completed, ATC concludes the following:

- No VOCs or metals were reported in excess of the RIDEM GA Groundwater Objectives, in the groundwater samples obtained on October 30, 2019. Previously, lead exceedances have been reported in groundwater samples from well MW-3. A cadmium exceedance was previously recorded in groundwater from MW-4.

- Methane was detected in monitoring point SG-3 at a concentration of 10.7%, which is within the methane lower and upper explosive limits of 5% and 15%. The seven fence-line perimeter monitoring points located near SG-3 (SG-5 through SG-11) were "non-detect" for methane. All of the remaining monitored soil gas points were also "non-detect" for methane. Therefore, the measured methane concentrations in the perimeter monitoring points did not exceed the RIDEM Solid Waste Regulation No. 2, Section 2.3.08 (d), of 25% of the LEL (1.25%) at the Site boundary.

- Hydrogen sulfide was detected at monitoring points SG-3 at 4%. Soil gas carbon dioxide concentrations at the monitoring points ranged from 0.2% to 14.5% at SG-5. The oxygen concentrations ranged from atmospheric (approximately 21.6%) down to 0.6% at SG-3 and SG-5.

TABLES

TABLE 1

WATER LEVEL MEASUREMENTS

Location:	Portsmouth Landfill, Park Ave.	*ATC #*	3010000238
Client:	AP Enterprise LLC	*Date:*	10/30/2019
Instrument:	ORS Interface Probe	*Gauged By:*	KS
Checked By:	SG		

WELL #	M.P. ELEVATIONS	DEPTH TO PRODUCT	DEPTH TO WATER	PRODUCT THICKNESS	EQUIVALENT HD ELEV.
MW-1	8.84	---	6.81	0.00	2.03
MW-2	16.25	---	14.29	0.00	1.96
MW-3	16.40	---	14.53	0.00	1.87
MW-4	14.09	---	11.72	0.00	2.37

NOTES:

Height of PVC; MW-1: 3.21, MW-2: 4.01, MW-3: 3.27, MW-4: 2.97

Survey completed by DiPrete Enginering (6/15/17)

Table 2

Groundwater Analytical Results
Former Portsmouth Town Landfill
Park Avenue, Portsmouth, Rhode Island

Well ID	Date	Antimony	Barium	Cadmium	Copper	Lead	Nickel	Selenium	Zinc	1,4-Dichlorobenzene	Chlorobenzene	Chloroform	Dichlorodifluoromethane	Diethyl Ether	Isopropylbenzene
MW-1	5/31/17	ND (0.025)	**0.062**	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/17	ND (0.002)	**0.068**	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	12/21/17	ND (0.002)	**0.101**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	**0.034**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.0005)	**0.050**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	**0.060**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	**0.031**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	10/30/18	ND (0.001)	**0.135**	ND (0.0025)	**0.030**	ND (0.010)	ND (0.025)	ND (0.005)	**0.137**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	1/9/19	ND (0.002)	**0.059**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/12/19	ND (0.001)	**0.051**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/29/19	ND (0.001)	**0.085**	**0.0032**	ND (0.01)	ND (0.01)	ND (0.025)	ND (0.005)	**0.036**	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)
	10/30/2019	ND (0.001)	**0.088**	ND (0.0025)	ND (0.001)	ND (0.001)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)
MW-2	5/31/17	ND (0.025)	**0.084**	ND (0.0025)	ND (0.010)	**0.005**	ND (0.025)	ND (0.005)	**0.044**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/17	ND (0.002)	**0.177**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	(ND 0.025)	ND (0.0010)	**0.0012**	ND (0.0010)	ND (0.0020)	ND (0.0010)	**0.0034**
	12/21/17	ND (0.002)	**0.187**	ND (0.0025)	ND (0.010)	**0.014**	ND (0.025)	ND (0.025)	**0.089**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.0005)	**0.094**	ND (0.0025)	**0.017**	ND (0.010)	ND (0.025)	ND (0.025)	**0.051**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	**0.119**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	**0.060**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	**0.0012**
	10/30/18	ND (0.001)	**0.141**	ND (0.0025)	ND (0.010)	**0.011**	ND (0.025)	ND (0.025)	**0.051**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	1/9/19	ND (0.002)	**0.070**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/12/2019	ND (0.001)	**0.069**	ND (0.0025)	ND (0.010)	**0.015**	ND (0.025)	ND (0.025)	**0.071**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/29/19	ND (0.001)	**0.088**	0.0025	ND (0.01)	ND (0.01)	ND (0.025)	ND (0.005)	**0.041**	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)
	10/30/2019	ND (0.001)	**0.082**	ND (0.0025)	ND (0.01)	ND (0.01)	ND (0.025)	ND (0.005)	**0.076**	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	**0.0014**
MW-3	5/31/17	ND (0.025)	**0.681**	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	**0.035**	**0.0011**	**0.0040**	ND (0.0010)	ND (0.0020)	**0.0011**	**0.0240**
	9/8/17	ND (0.002)	**0.606**	ND (0.0025)	ND (0.010)	**0.027**	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	**0.0026**	ND (0.0010)	ND (0.0020)	**0.0014**	**0.0025**
	12/21/17	ND (0.002)	**1.01**	ND (0.0025)	ND (0.010)	**0.025**	ND (0.025)	ND (0.025)	ND (0.025)	**0.0010**	**0.0029**	ND (0.0010)	**0.0073**	**0.0017**	**0.0191**
	4/13/18	ND (0.0005)	**0.460**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	**0.029**	ND (0.025)	**0.0012**	**0.0082**	ND (0.0010)	**0.0051**	ND (0.0010)	**0.0117**
	7/31/18	ND (0.0005)	**0.654**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	**0.0036**	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	10/30/18	ND (0.001)	**0.607**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	**0.027**	ND (0.0010)	**0.0024**	ND (0.0010)	ND (0.0020)	**0.0012**	**0.0020**
	1/9/19	ND (0.002)	**0.519**	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	**0.0013**	**0.0053**	ND (0.0010)	**0.0068**	ND (0.0010)	**0.0050**
	4/12/2019	ND (0.001)	**0.506**	ND (0.0025)	ND (0.010)	**0.016**	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	**0.0044**	ND (0.0010)	ND (0.0020)	ND (0.0010)	**0.0013**
	7/29/19	ND (0.001)	**0.482**	**0.0027**	ND (0.01)	ND (0.01)	ND (0.025)	ND (0.005)	**0.030**	**0.0010**	**0.0037**	ND (0.001)	ND (0.002)	ND (0.001)	**0.0011**
	10/30/2019	ND (0.001)	**0.470**	ND (0.0025)	ND (0.01)	ND (0.01)	ND (0.025)	ND (0.005)	**0.043**	ND (0.001)	**0.0036**	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)
MW-4	5/31/17	ND (0.025)	**0.050**	**0.0043**	**0.057**	ND (0.002)	**0.042**	ND (0.005)	**1.53**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/2017	ND (0.002)	**0.030**	**0.0025**	**0.021**	ND (0.002)	ND (0.025)	ND (0.005)	**0.562**	ND (0.0010)	ND (0.0010)	**0.0014**	ND (0.0020)	ND (0.0010)	ND (0.0010)
	12/21/17	ND (0.002)	**0.040**	ND (0.0025)	**0.017**	ND (0.010)	ND (0.025)	ND (0.025)	**0.264**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.002)	**0.0490**	**0.0036**	**0.043**	ND (0.010)	**0.055**	ND (0.025)	**1.90**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	**0.032**	ND (0.0025)	**0.031**	ND (0.010)	ND (0.025)	ND (0.025)	**0.806**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	10/30/18	ND (0.001)	**0.070**	**0.0044**	**0.052**	ND (0.010)	**0.036**	ND (0.005)	**1.50**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	1/9/19	ND (0.002)	**0.060**	**0.0030**	**0.062**	ND (0.010)	**0.059**	ND (0.005)	**1.88**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/12/2019	ND (0.001)	**0.047**	ND (0.0025)	**0.034**	ND (0.010)	**0.038**	ND (0.025)	**1.34**	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/29/19	ND (0.001)	**0.057**	**0.0063**	**0.052**	ND (0.01)	**0.046**	ND (0.005)	**1.53**	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)
	10/30/2019	ND (0.001)	**0.470**	ND (0.0025)	ND (0.01)	ND (0.01)	ND (0.025)	ND (0.005)	**0.043**	ND (0.001)	**0.0036**	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)
RIDEM GA Groundwater Objectives		**0.006**	**2**	**0.005**	**NS**	**0.015**	**0.1**	**0.05**	**NS**	**0.075**	**0.1**	**NS**	**NS**	**NS**	**NS**

Notes:
All units in mg/L = milligrams per liter unless otherwise noted
NS = No Standard
NA = Not Available or Not Analyzed
ND = not detected above method detection limit
Highlighted Exceeds RIDEM GA Groundwater Objective

Table 3

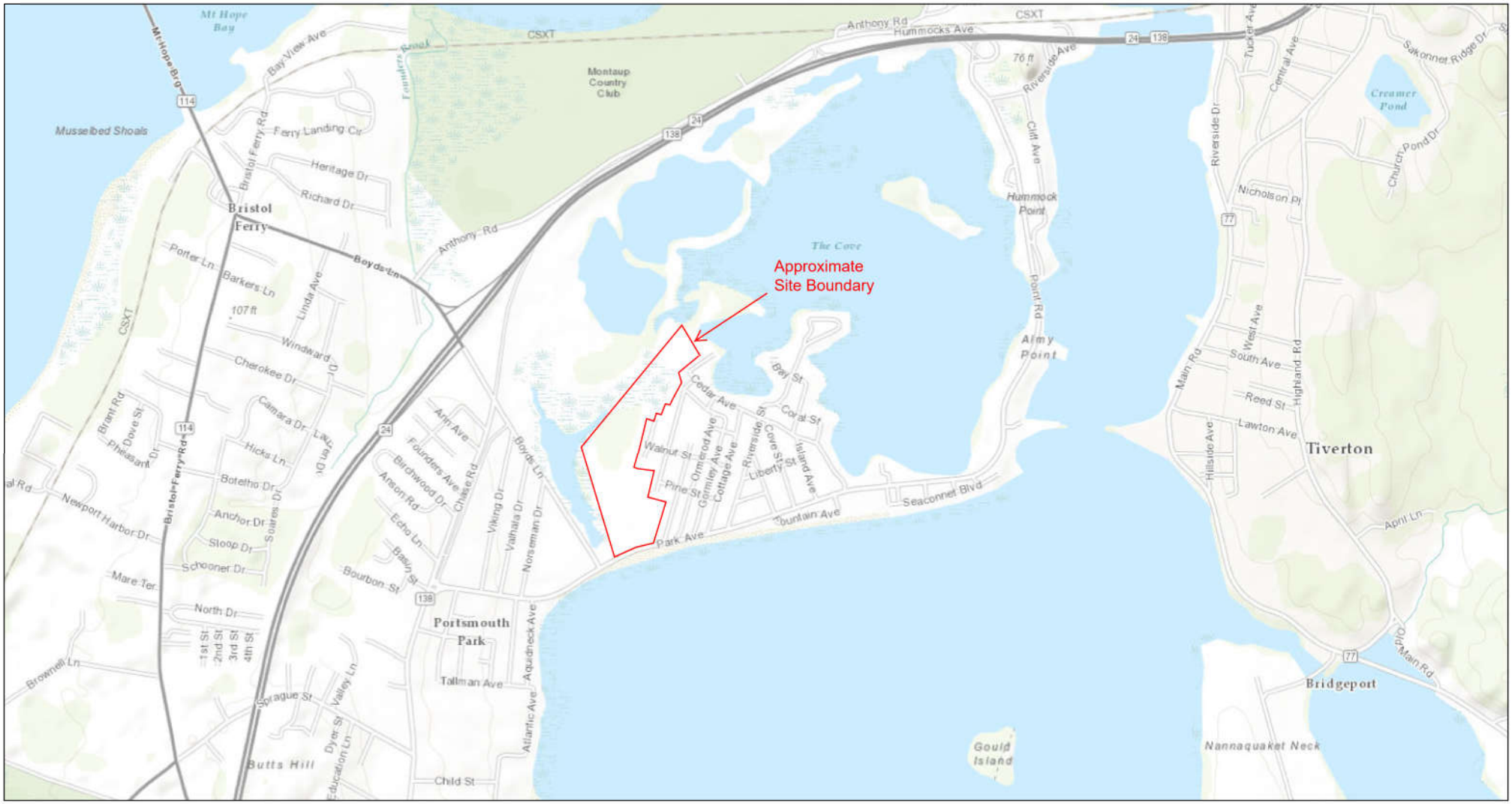
Soil Gas Monitoring Data
Former Portsmouth Landfill
Park Avenue, Portsmouth, RI

		Ambient						Soil Gas				
Location	Date	Temperature (F°)	Barometric Pressure (Inches Hg)	Wind Velocity (Miles Per Hour)	Wind Direction	Ambient Methane (CH4) (%)	Ambient Oxygen (O2) (%)	Soil Gas Methane (CH4) (%)	Soil Gas Oxygen (O2) (%)	Soil Gas Hydrogen Sulfide (H_2S) (ppm)	Soil Gas LEL (%)	C02 (%)
SG-1	5/30/2017	54	30.24	4	SE	0.0	20.5	0	20.5	0	0	0
	9/8/2017	72	30.03	5	S	0.0	19.2	0	19.1	0	0	0
	12/21/2017	32	30.24	8	NW	0.2	21.6	0	21.2	0	0	0
	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	21.6	0	0	0
	7/31/2018	85	30.14	1	S	0.0	19.4	0	19.4	0	0	0
	10/30/2018	50	29.97	8	SSE	0.0	20.9	0	20.8	0	0	0.1
	1/9/2019	43	29.38	5	S	0.0	20.8	0	20.8	0	0	0.1
	4/12/2019	49	30.10	6	NW	0.0	21.3	No flow, obstructed well				
	4/25/2019	54	29.86	3	N	0.0	20.9	0	20.7	0	0	0
	7/29/2019	87	30.01	4	SE	0.0	21.9	Well protector knocked over, laying on ground. Tubing appeared intact but no flow.				
	10/30/2019	67	30.36	0	---	0.0	20.2	Well protector repaired. No flow in tubing.				
SG-2	5/30/2017	56	30.22	6	SE	0.0	20.6	0	20.6	0	0	0
	9/8/2017	72	30.03	8	S	0.0	19.4	0	19.3	0	0	0
	12/21/2017	32	30.24	10	NW	0.0	21.6	0	21.4	0	0	0
	4/13/2018	72	30.03	8	S	0.0	19.4	0	19.3	0	0	0
	7/31/2018	85	30.15	12	SW	0.0	19.8	0	19.7	0	0	0.1
	10/30/2018	50	29.95	8	SE	0.0	21.1	0	20.9	0	0	0.1
	1/9/2019	43	29.34	10	S	0.0	21.2	0	21.2	0	0	0
	4/12/2019	49	30.10	7	NE	0.0	21.2	0	21.2	0	0	0.2
	7/29/2019	99	30.04	3	S	0.0	21.8	0.1	21.6	0	0	0.2
	10/30/2019	67	30.36	0	---	0.0	20.2	0	20.6	0	0	0.1
SG-3	5/30/2017	56	30.22	6	SE	0.0	20.4	9.7	1.3	0	>100	12.5
	9/8/2017	73	30.04	4	SE	0.0	19.7	4.1	11.7	0	87	5.0
	12/21/2017	32	30.24	10	NW	0.0	21.6	4.6	7.8	0	90	9.0
	4/13/2018	73	30.04	4	SE	0.0	19.7	4.1	11.7	0	87	5.0
	7/31/2018	85	30.16	12	SW	0.0	19.7	7.7	5.2	2	>100	10.4
	10/30/2018	51	29.95	10	SSE	0.0	21.8	13.5	0.2	4	>100	2.0
	1/9/2019	42	29.33	12	S	0.0	21.3	16.0	0.0	4	>100	11.7
	4/12/2019	50	30.10	6	N	0.0	20.9	3.6	0.1	1	21	11.1
	7/29/2019	109	30.05	2	S	0.0	21.6	15.4	0.6	4	99	11.9
	10/30/2019	67	30.36	0	---	0.0	20.9	10.7	0.2	4	>100	14.4
SG-4	5/30/2017	56	30.20	8	SE	0.0	20.1	0	19.6	0	0	0.2
	9/8/2017	73	30.05	6	SE	0.0	19.2	0	18.5	0	0	0.4
	12/21/2017	32	30.24	6	NW	0.0	21.6	0	21.0	0	0	0.5
	4/13/2018	73	30.05	6	SE	0.0	19.2	0	18.5	0	0	0.4
	7/31/2018	85	30.13	1	S	0.0	19.7	0	19.3	0	0	0.4
	10/30/2018	55	29.96	14	SSE	0.0	21.7	0	18.8	0	0	15.3
	1/9/2019	43	29.34	10	S	0.0	21.6	0	18.7	0	0	2.1
	4/12/2019	47	30.10	5	N	0.0	20.7	0	19.9	0	0	1.4
	7/29/2019	104	30.03	0	SE	0.0	21.3	0	20.3	0	0	0.9
	10/30/2019	67	30.37	0	---	0.0	21.0	0	18.7	0	0	1.2
SG-5	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	20.1	0	0	0.7
	7/31/2018	85	30.16	12	SW	0.0	19.9	0	17.0	0	0	3.3
	10/30/2018	51	29.96	7	SE	0.0	21.4	0	13.5	0	0	6.5
	1/9/2019	42	29.33	10	S	0.0	21.2	0	17.0	0	0	3.9
	4/12/2019	46	30.20	9	N	0.0	21.2	0	19.4	1	0	2.7
	7/29/2019	101	30.04	5	S	0.0	21.9	0.7	0.6	0	6	14.5
	10/30/2019	67	30.37	0	---	0.0	20.2	0	7.2	0	0	9.4
SG-6	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	18.2	0	0	2.6
	7/31/2018	85	30.16	12	SW	0.0	19.9	0	10.3	0	0	8.6
	10/30/2018	51	29.95	7	SSE	0.0	21.5	0	15.3	0	0	6.0
	1/9/2019	42	29.33	15	S	0.0	21.1	0	15.9	0	0	5.0
	4/12/2019	48	30.20	7	NE	0.0	21.1	0	17.2	1	0	3.4
	7/29/2019	88	30.04	4	S	0.0	21.9	Inaccessible - Dense Vegetation				
	10/30/2019	67	30.34	0	---	0.0	20.6	0	7.4	0	0	10.9
SG-7	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	17.6	0	0	3.3
	7/31/2018	85	30.16	12	SW	0.0	19.8	0	12.3	0	0	7.9
	10/30/2018	52	29.95	9	SSE	0.0	21.4	0	21.6	0	0	0.1
	1/9/2019	42	29.34	12	S	0.0	21.2	0	20.0	0	0	3.0
	4/12/2019	48	30.20	7	N	0.0	20.9	0	21.2	0	0	0.2
	7/29/2019	88	30.04	4	S	0.0	21.9	Inaccessible - Dense Vegetation				
	10/30/2019	67	30.37	0	---	0.0	20.7	0	20.9	0	0	0.1
SG-8	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	20.7	0	0	0.8
	7/31/2018	85	30.16	12	SW	0.0	19.2	0	18.1	0	0	1.1
	10/30/2018	52	29.95	9	SE	0.0	21.9	0	20.1	0	0	1.7
	1/9/2019	41	29.34	10	S	0.0	21.2	0	19.5	0	0	1.0
	4/12/2019	50	30.30	6	N	0.0	20.8	0	19.9	0	0	1.3
	7/29/2019	88	30.04	4	S	0.0	21.9	0	20.6	0	0	1.2
	10/30/2019	67	30.37	0	---	0.0	21.0	0	19.4	0	0	1.2
SG-9	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	14.9	0	0	5.4
	7/31/2018	85	30.16	12	SW	0.0	19.2	0	13.7	0	0	5.2
	10/30/2018	54	29.94	12	SSE	0.0	21.7	0	13.0	0	0	7.4
	1/9/2019	41	29.33	10	S	0.0	21.3	0	14.4	0	0	4.8
	4/12/2019	50	30.30	5	N	0.0	20.8	0	15.1	0	0	4.8
	7/29/2019	102	30.04	1	S	0.0	21.5	0	13.6	0	0	5.4
	10/30/2019	67	30.80	0	---	0.0	20.9	0	10.5	0	0	9.1
SG-10	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	19.4	0	0	2.2
	7/31/2018	85	30.16	12	SW	0.0	19.3	0	12.9	1	0	5.9
	10/30/2018	53	29.94	14	SE	0.0	21.8	0	5.2	0	0	12.8
	1/9/2019	41	29.33	12	S	0.0	21.3	0	19.0	0	0	5.1
	4/12/2019	49	30.30	4	NE	0.0	20.8	0	14.3	0	0	5.6
	7/29/2019	102	30.40	1	S	0.0	21.4	0.1	6	0	0	11.8
	10/30/2019	67	30.37	0	---	0.0	20.9	0	8.7	0	0	10.3
SG-11	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	20.1	0	0	1.4
	7/31/2018	85	30.16	12	SW	0.0	19.6	0	16.3	0	0	1.8
	7/31/2018	85	30.16	12	SW	0.0	19.6	0	16.3	0	0	1.8
	10/30/2018	53	29.94	14	SE	0.0	21.6	0	19.1	0	0	2.1
	1/9/2019	41	29.33	10	S	0.0	21.2	0	18.9	0	0	1.2
	4/12/2019	49	30.30	4	N	0.0	20.6	0	19.8	0	0	1.7
	7/29/2019	88	30.04	4	S	0.0	21.9	0	20.9	0	0	1.2
	10/30/2019	67	30.37	0	---	0.0	20.9	0	18.1	0	0	2.8

Lower explosive limit (LEL) of methane (CH4) is 5%
Landfill gases measured using a Landtech Gem 2000 Plus Landfill Gas Monitor

FIGURES

RIDEM Environmental Resource Map



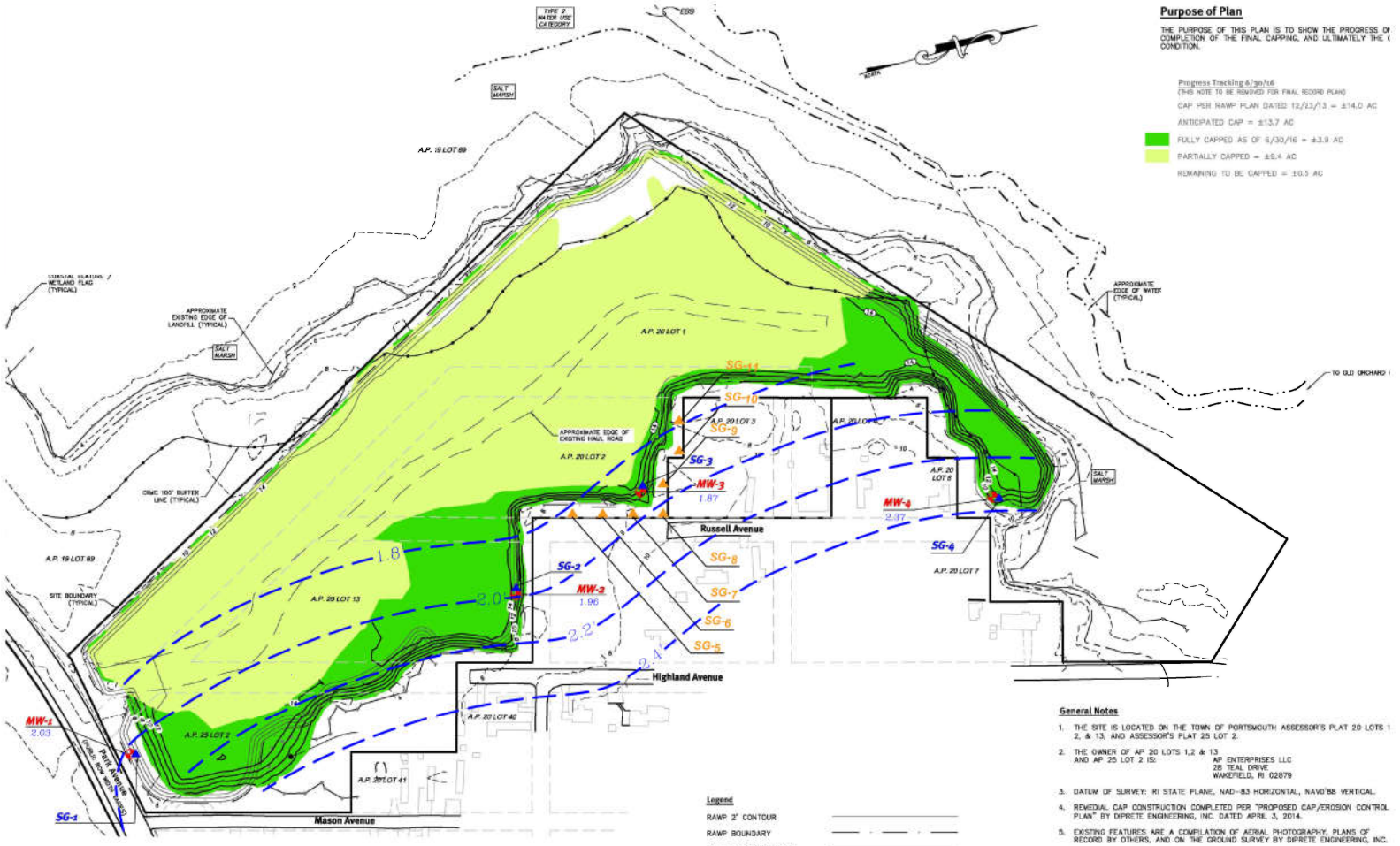
July 7, 2017

1:18,056

0 0.175 0.35 0.7 mi

0 0.35 0.7 1.4 km

Figure 1: Site Locus Map



The base map for this figure was developed from a Diprete Engineering plan entitled "Landfill Monitoring Plan, Former Portsmouth Landfill, revised 07-18-2017."

0 Approximate Feet 180

NAME/ADDRESS:

Prepared for
AP Enterprise LLC
28 Teal Drive, Wakefield, RI 02879

DRAWING TITLE:

Groundwater Elevation Contours
October 30, 2019
Former Portsmouth Landfill

ATLAS ATC
400 Reservoir Avenue, Suite 3D
Providence, RI 0290
(401) 714-0306

DRAWN BY:	SG	FIGURE NO.
CHECKED BY:	AK	2
PROJECT NO.	3010000238	
DATE:	11/11/19	

APPENDIX A

CERTIFICATE OF ANALYSIS

Stephen Gautie
ATC Group Services
400 Resevoir Ave Ste 2C
Providence, RI 02907

RE: Former Portsmouth Landfill (3010000238)
ESS Laboratory Work Order Number: 19K0002

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:38 pm, Nov 08, 2019

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

SAMPLE RECEIPT

The following samples were received on November 01, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
19K0002-01	MW-1	Ground Water	6010C, 6020A, 7010, 8260B
19K0002-02	MW-2	Ground Water	6010C, 6020A, 7010, 8260B
19K0002-03	MW-3	Ground Water	6010C, 6020A, 7010, 8260B
19K0002-04	MW-4	Ground Water	6010C, 6020A, 7010, 8260B
19K0002-05	Trip Blank	Aqueous	8260B

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

PROJECT NARRATIVE

8260B Volatile Organic Compounds

C9K0080-CCV1	**Continuing Calibration %Diff/Drift is above control limit (CD+).**
	Chloromethane (31% @ 30%)
C9K0080-CCV1	**Continuing Calibration %Diff/Drift is below control limit (CD-).**
	Bromomethane (34% @ 30%)
CK90532-BSD1	**Blank Spike recovery is below lower control limit (B-).**
	Bromomethane (68% @ 70-130%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 10/30/19 15:00
Percent Solids: N/A

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-01
Sample Matrix: Ground Water
Units: mg/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.001)		6020A		1	NAR	11/06/19 14:03	50	25	CK90455
Arsenic	ND (0.002)		7010		1	KJK	11/06/19 1:28	50	25	CK90455
Barium	**0.088** (0.025)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Beryllium	ND (0.0005)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Cadmium	ND (0.0025)		6010C		1	KJK	11/05/19 2:36	50	25	CK90455
Chromium	ND (0.010)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Cobalt	ND (0.010)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Copper	ND (0.010)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Lead	ND (0.010)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Nickel	ND (0.025)		6010C		1	KJK	11/05/19 2:36	50	25	CK90455
Selenium	ND (0.005)		7010		1	KJK	11/06/19 4:47	50	25	CK90455
Silver	ND (0.005)		6010C		1	KJK	11/05/19 2:36	50	25	CK90455
Thallium	ND (0.0005)		6020A		1	NAR	11/06/19 14:03	50	25	CK90455
Vanadium	ND (0.010)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455
Zinc	ND (0.025)		6010C		1	BJV	11/05/19 2:36	50	25	CK90455

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 10/30/19 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,1-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,1-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,1-Dichloropropene	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2-Dibromoethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,3-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1,4-Dioxane - Screen	ND (0.500)		8260B		1	11/05/19 15:33	C9K0080	CK90532
1-Chlorohexane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
2,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
2-Butanone	ND (0.0100)		8260B		1	11/05/19 15:33	C9K0080	CK90532
2-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
2-Hexanone	ND (0.0100)		8260B		1	11/05/19 15:33	C9K0080	CK90532
4-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
4-Isopropyltoluene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Acetone	ND (0.0100)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Benzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Bromobenzene	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 10/30/19 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Bromodichloromethane	ND (0.0006)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Bromoform	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Bromomethane	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Carbon Disulfide	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Carbon Tetrachloride	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Chlorobenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Chloroethane	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Chloroform	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Chloromethane	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Dibromochloromethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Dibromomethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Dichlorodifluoromethane	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Diethyl Ether	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Di-isopropyl ether	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Ethylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Hexachlorobutadiene	ND (0.0006)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Hexachloroethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Isopropylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Methylene Chloride	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Naphthalene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
n-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
n-Propylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
sec-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Styrene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
tert-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Tetrachloroethene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 10/30/19 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrahydrofuran	ND (0.0050)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Toluene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Trichloroethene	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Trichlorofluoromethane	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Vinyl Acetate	ND (0.0050)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Vinyl Chloride	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Xylene O	ND (0.0010)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Xylene P,M	ND (0.0020)		8260B		1	11/05/19 15:33	C9K0080	CK90532
Xylenes (Total)	ND (0.00200)		8260B		1	11/05/19 15:33		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	95 %		70-130
Surrogate: 4-Bromofluorobenzene	92 %		70-130
Surrogate: Dibromofluoromethane	100 %		70-130
Surrogate: Toluene-d8	100 %		70-130

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-2
Date Sampled: 10/30/19 13:43
Percent Solids: N/A

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-02
Sample Matrix: Ground Water
Units: mg/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.001)		6020A		1	NAR	11/06/19 14:08	50	25	CK90455
Arsenic	**0.003** (0.002)		7010		1	KJK	11/06/19 1:34	50	25	CK90455
Barium	**0.082** (0.025)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Beryllium	ND (0.0005)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Cadmium	ND (0.0025)		6010C		1	KJK	11/05/19 2:40	50	25	CK90455
Chromium	ND (0.010)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Cobalt	ND (0.010)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Copper	ND (0.010)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Lead	ND (0.010)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Nickel	ND (0.025)		6010C		1	KJK	11/05/19 2:40	50	25	CK90455
Selenium	ND (0.005)		7010		1	KJK	11/06/19 4:52	50	25	CK90455
Silver	ND (0.005)		6010C		1	KJK	11/05/19 2:40	50	25	CK90455
Thallium	ND (0.0005)		6020A		1	NAR	11/06/19 14:08	50	25	CK90455
Vanadium	ND (0.010)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455
Zinc	**0.076** (0.025)		6010C		1	BJV	11/05/19 2:40	50	25	CK90455

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-2
Date Sampled: 10/30/19 13:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,1-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,1-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,1-Dichloropropene	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2-Dibromoethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,3-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1,4-Dioxane - Screen	ND (0.500)		8260B		1	11/05/19 16:00	C9K0080	CK90532
1-Chlorohexane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
2,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
2-Butanone	ND (0.0100)		8260B		1	11/05/19 16:00	C9K0080	CK90532
2-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
2-Hexanone	ND (0.0100)		8260B		1	11/05/19 16:00	C9K0080	CK90532
4-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
4-Isopropyltoluene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Acetone	ND (0.0100)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Benzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Bromobenzene	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-2
Date Sampled: 10/30/19 13:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Bromodichloromethane	ND (0.0006)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Bromoform	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Bromomethane	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Carbon Disulfide	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Carbon Tetrachloride	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Chlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Chloroethane	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Chloroform	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Chloromethane	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Dibromochloromethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Dibromomethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Dichlorodifluoromethane	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Diethyl Ether	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Di-isopropyl ether	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Ethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Hexachlorobutadiene	ND (0.0006)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Hexachloroethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Isopropylbenzene	**0.0014** (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Methylene Chloride	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Naphthalene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
n-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
n-Propylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
sec-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Styrene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
tert-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Tetrachloroethene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-2
Date Sampled: 10/30/19 13:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrahydrofuran	ND (0.0050)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Toluene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Trichloroethene	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Trichlorofluoromethane	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Vinyl Acetate	ND (0.0050)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Vinyl Chloride	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Xylene O	ND (0.0010)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Xylene P,M	ND (0.0020)		8260B		1	11/05/19 16:00	C9K0080	CK90532
Xylenes (Total)	ND (0.00200)		8260B		1	11/05/19 16:00		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	90 %		70-130
Surrogate: 4-Bromofluorobenzene	94 %		70-130
Surrogate: Dibromofluoromethane	102 %		70-130
Surrogate: Toluene-d8	104 %		70-130

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 10/30/19 12:33
Percent Solids: N/A

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-03
Sample Matrix: Ground Water
Units: mg/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.001)		6020A		1	NAR	11/06/19 14:13	50	25	CK90455
Arsenic	**0.004** (0.002)		7010		1	KJK	11/06/19 1:52	50	25	CK90455
Barium	**0.470** (0.025)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Beryllium	ND (0.0005)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Cadmium	ND (0.0025)		6010C		1	KJK	11/05/19 2:55	50	25	CK90455
Chromium	ND (0.010)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Cobalt	ND (0.010)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Copper	ND (0.010)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Lead	ND (0.010)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Nickel	ND (0.025)		6010C		1	KJK	11/05/19 2:55	50	25	CK90455
Selenium	ND (0.005)		7010		1	KJK	11/06/19 4:58	50	25	CK90455
Silver	ND (0.005)		6010C		1	KJK	11/05/19 2:55	50	25	CK90455
Thallium	ND (0.0005)		6020A		1	NAR	11/06/19 14:13	50	25	CK90455
Vanadium	ND (0.010)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455
Zinc	**0.043** (0.025)		6010C		1	BJV	11/05/19 2:55	50	25	CK90455

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 10/30/19 12:33
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,1-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,1-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,1-Dichloropropene	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2-Dibromoethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,3-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1,4-Dioxane - Screen	ND (0.500)		8260B		1	11/05/19 16:26	C9K0080	CK90532
1-Chlorohexane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
2,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
2-Butanone	ND (0.0100)		8260B		1	11/05/19 16:26	C9K0080	CK90532
2-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
2-Hexanone	ND (0.0100)		8260B		1	11/05/19 16:26	C9K0080	CK90532
4-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
4-Isopropyltoluene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Acetone	ND (0.0100)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Benzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Bromobenzene	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 10/30/19 12:33
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Bromodichloromethane	ND (0.0006)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Bromoform	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Bromomethane	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Carbon Disulfide	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Carbon Tetrachloride	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Chlorobenzene	**0.0036** (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Chloroethane	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Chloroform	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Chloromethane	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Dibromochloromethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Dibromomethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Dichlorodifluoromethane	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Diethyl Ether	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Di-isopropyl ether	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Ethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Hexachlorobutadiene	ND (0.0006)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Hexachloroethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Isopropylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Methylene Chloride	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Naphthalene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
n-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
n-Propylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
sec-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Styrene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
tert-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Tetrachloroethene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 10/30/19 12:33
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrahydrofuran	ND (0.0050)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Toluene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Trichloroethene	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Trichlorofluoromethane	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Vinyl Acetate	ND (0.0050)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Vinyl Chloride	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Xylene O	ND (0.0010)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Xylene P,M	ND (0.0020)		8260B		1	11/05/19 16:26	C9K0080	CK90532
Xylenes (Total)	ND (0.00200)		8260B		1	11/05/19 16:26		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	90 %		70-130
Surrogate: 4-Bromofluorobenzene	91 %		70-130
Surrogate: Dibromofluoromethane	100 %		70-130
Surrogate: Toluene-d8	103 %		70-130

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-4
Date Sampled: 10/30/19 11:29
Percent Solids: N/A

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-04
Sample Matrix: Ground Water
Units: mg/L

Extraction Method: 3005A/200.7

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (0.001)		6020A		1	NAR	11/06/19 14:28	50	25	CK90455
Arsenic	ND (0.002)		7010		1	KJK	11/06/19 1:58	50	25	CK90455
Barium	**0.061** (0.025)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Beryllium	ND (0.0005)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Cadmium	**0.0030** (0.0025)		6010C		1	KJK	11/05/19 3:01	50	25	CK90455
Chromium	ND (0.010)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Cobalt	ND (0.010)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Copper	**0.033** (0.010)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Lead	ND (0.010)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Nickel	ND (0.025)		6010C		1	KJK	11/05/19 3:01	50	25	CK90455
Selenium	ND (0.005)		7010		1	KJK	11/06/19 5:04	50	25	CK90455
Silver	ND (0.005)		6010C		1	KJK	11/05/19 3:01	50	25	CK90455
Thallium	ND (0.0005)		6020A		1	NAR	11/06/19 14:28	50	25	CK90455
Vanadium	ND (0.010)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455
Zinc	**1.36** (0.025)		6010C		1	BJV	11/05/19 3:01	50	25	CK90455

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-4
Date Sampled: 10/30/19 11:29
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,1-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,1-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,1-Dichloropropene	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2-Dibromoethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,3-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1,4-Dioxane - Screen	ND (0.500)		8260B		1	11/05/19 16:53	C9K0080	CK90532
1-Chlorohexane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
2,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
2-Butanone	ND (0.0100)		8260B		1	11/05/19 16:53	C9K0080	CK90532
2-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
2-Hexanone	ND (0.0100)		8260B		1	11/05/19 16:53	C9K0080	CK90532
4-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
4-Isopropyltoluene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Acetone	ND (0.0100)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Benzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Bromobenzene	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-4
Date Sampled: 10/30/19 11:29
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Bromodichloromethane	ND (0.0006)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Bromoform	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Bromomethane	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Carbon Disulfide	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Carbon Tetrachloride	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Chlorobenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Chloroethane	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Chloroform	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Chloromethane	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Dibromochloromethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Dibromomethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Dichlorodifluoromethane	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Diethyl Ether	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Di-isopropyl ether	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Ethylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Hexachlorobutadiene	ND (0.0006)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Hexachloroethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Isopropylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Methylene Chloride	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Naphthalene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
n-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
n-Propylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
sec-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Styrene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
tert-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Tetrachloroethene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-4
Date Sampled: 10/30/19 11:29
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrahydrofuran	ND (0.0050)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Toluene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Trichloroethene	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Trichlorofluoromethane	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Vinyl Acetate	ND (0.0050)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Vinyl Chloride	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Xylene O	ND (0.0010)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Xylene P,M	ND (0.0020)		8260B		1	11/05/19 16:53	C9K0080	CK90532
Xylenes (Total)	ND (0.00200)		8260B		1	11/05/19 16:53		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	93 %		70-130
Surrogate: 4-Bromofluorobenzene	87 %		70-130
Surrogate: Dibromofluoromethane	104 %		70-130
Surrogate: Toluene-d8	101 %		70-130

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: Trip Blank
Date Sampled: 10/31/19 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-05
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,1-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,1-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,1-Dichloropropene	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2-Dibromoethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2-Dichloroethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,3-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1,4-Dioxane - Screen	ND (0.500)		8260B		1	11/05/19 12:26	C9K0080	CK90532
1-Chlorohexane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
2,2-Dichloropropane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
2-Butanone	ND (0.0100)		8260B		1	11/05/19 12:26	C9K0080	CK90532
2-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
2-Hexanone	ND (0.0100)		8260B		1	11/05/19 12:26	C9K0080	CK90532
4-Chlorotoluene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
4-Isopropyltoluene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Acetone	ND (0.0100)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Benzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Bromobenzene	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: Trip Blank
Date Sampled: 10/31/19 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-05
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Bromodichloromethane	ND (0.0006)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Bromoform	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Bromomethane	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Carbon Disulfide	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Carbon Tetrachloride	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Chlorobenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Chloroethane	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Chloroform	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Chloromethane	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Dibromochloromethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Dibromomethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Dichlorodifluoromethane	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Diethyl Ether	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Di-isopropyl ether	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Ethylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Hexachlorobutadiene	ND (0.0006)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Hexachloroethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Isopropylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Methylene Chloride	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Naphthalene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
n-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
n-Propylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
sec-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Styrene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
tert-Butylbenzene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Tetrachloroethene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: Trip Blank
Date Sampled: 10/31/19 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 19K0002
ESS Laboratory Sample ID: 19K0002-05
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Tetrahydrofuran	ND (0.0050)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Toluene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Trichloroethene	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Trichlorofluoromethane	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Vinyl Acetate	ND (0.0050)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Vinyl Chloride	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Xylene O	ND (0.0010)		8260B		1	11/05/19 12:26	C9K0080	CK90532
Xylene P,M	ND (0.0020)		8260B		1	11/05/19 12:26	C9K0080	CK90532

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	98 %		70-130
Surrogate: 4-Bromofluorobenzene	99 %		70-130
Surrogate: Dibromofluoromethane	100 %		70-130
Surrogate: Toluene-d8	101 %		70-130

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CK90455 - 3005A/200.7										
Blank										
Barium	ND	0.025	mg/L							
Beryllium	ND	0.0005	mg/L							
Cadmium	ND	0.0025	mg/L							
Chromium	ND	0.010	mg/L							
Cobalt	ND	0.010	mg/L							
Copper	ND	0.010	mg/L							
Lead	ND	0.010	mg/L							
Nickel	ND	0.025	mg/L							
Silver	ND	0.005	mg/L							
Vanadium	ND	0.010	mg/L							
Zinc	ND	0.025	mg/L							
Blank										
Antimony	ND	0.001	mg/L							
Thallium	ND	0.0005	mg/L							
Blank										
Arsenic	ND	0.002	mg/L							
Selenium	ND	0.005	mg/L							
LCS										
Barium	0.238	0.025	mg/L	0.2500		95	80-120			
Beryllium	0.0228	0.0005	mg/L	0.02500		91	80-120			
Cadmium	0.112	0.0025	mg/L	0.1250		89	80-120			
Chromium	0.237	0.010	mg/L	0.2500		95	80-120			
Cobalt	0.237	0.010	mg/L	0.2500		95	80-120			
Copper	0.248	0.010	mg/L	0.2500		99	80-120			
Lead	0.236	0.010	mg/L	0.2500		94	80-120			
Nickel	0.236	0.025	mg/L	0.2500		94	80-120			
Silver	0.122	0.005	mg/L	0.1250		97	80-120			
Vanadium	0.239	0.010	mg/L	0.2500		96	80-120			
Zinc	0.253	0.025	mg/L	0.2500		101	80-120			
LCS										
Antimony	0.244	0.005	mg/L	0.2500		97	80-120			
Thallium	0.250	0.002	mg/L	0.2500		100	80-120			
LCS										
Arsenic	0.235	0.062	mg/L	0.2500		94	80-120			
Selenium	0.490	0.125	mg/L	0.5000		98	80-120			
LCS Dup										
Barium	0.238	0.025	mg/L	0.2500		95	80-120	0.02	20	
Beryllium	0.0228	0.0005	mg/L	0.02500		91	80-120	0.3	20	
Cadmium	0.111	0.0025	mg/L	0.1250		89	80-120	0.5	20	
Chromium	0.236	0.010	mg/L	0.2500		94	80-120	0.5	20	
Cobalt	0.237	0.010	mg/L	0.2500		95	80-120	0.08	20	
Copper	0.247	0.010	mg/L	0.2500		99	80-120	0.5	20	
Lead	0.240	0.010	mg/L	0.2500		96	80-120	2	20	

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CK90455 - 3005A/200.7										
Nickel	0.238	0.025	mg/L	0.2500		95	80-120	0.8	20	
Silver	0.122	0.005	mg/L	0.1250		97	80-120	0.08	20	
Vanadium	0.239	0.010	mg/L	0.2500		95	80-120	0.07	20	
Zinc	0.240	0.025	mg/L	0.2500		96	80-120	5	20	
LCS Dup										
Antimony	0.251	0.005	mg/L	0.2500		100	80-120	3	20	
Thallium	0.259	0.002	mg/L	0.2500		103	80-120	3	20	
LCS Dup										
Arsenic	0.238	0.062	mg/L	0.2500		95	80-120	1	20	
Selenium	0.502	0.125	mg/L	0.5000		100	80-120	2	20	
8260B Volatile Organic Compounds										
Batch CK90532 - 5030B										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0010	mg/L							
1,1,1-Trichloroethane	ND	0.0010	mg/L							
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L							
1,1,2-Trichloroethane	ND	0.0010	mg/L							
1,1-Dichloroethane	ND	0.0010	mg/L							
1,1-Dichloroethene	ND	0.0010	mg/L							
1,1-Dichloropropene	ND	0.0020	mg/L							
1,2,3-Trichlorobenzene	ND	0.0010	mg/L							
1,2,3-Trichloropropane	ND	0.0010	mg/L							
1,2,4-Trichlorobenzene	ND	0.0010	mg/L							
1,2,4-Trimethylbenzene	ND	0.0010	mg/L							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/L							
1,2-Dibromoethane	ND	0.0010	mg/L							
1,2-Dichlorobenzene	ND	0.0010	mg/L							
1,2-Dichloroethane	ND	0.0010	mg/L							
1,2-Dichloropropane	ND	0.0010	mg/L							
1,3,5-Trimethylbenzene	ND	0.0010	mg/L							
1,3-Dichlorobenzene	ND	0.0010	mg/L							
1,3-Dichloropropane	ND	0.0010	mg/L							
1,4-Dichlorobenzene	ND	0.0010	mg/L							
1,4-Dioxane - Screen	ND	0.500	mg/L							
1-Chlorohexane	ND	0.0010	mg/L							
2,2-Dichloropropane	ND	0.0010	mg/L							
2-Butanone	ND	0.0100	mg/L							
2-Chlorotoluene	ND	0.0010	mg/L							
2-Hexanone	ND	0.0100	mg/L							
4-Chlorotoluene	ND	0.0010	mg/L							
4-Isopropyltoluene	ND	0.0010	mg/L							
4-Methyl-2-Pentanone	ND	0.0250	mg/L							
Acetone	ND	0.0100	mg/L							

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CK90532 - 5030B										
Benzene	ND	0.0010	mg/L							
Bromobenzene	ND	0.0020	mg/L							
Bromochloromethane	ND	0.0010	mg/L							
Bromodichloromethane	ND	0.0006	mg/L							
Bromoform	ND	0.0010	mg/L							
Bromomethane	ND	0.0020	mg/L							
Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0242		mg/L	0.02500		97	70-130			

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CK90532 - 5030B										
Surrogate: 4-Bromofluorobenzene	0.0250		mg/L	0.02500		100	70-130			
Surrogate: Dibromofluoromethane	0.0260		mg/L	0.02500		104	70-130			
Surrogate: Toluene-d8	0.0252		mg/L	0.02500		101	70-130			
LCS										
1,1,1,2-Tetrachloroethane	0.0090	0.0010	mg/L	0.01000		90	70-130			
1,1,1-Trichloroethane	0.0099	0.0010	mg/L	0.01000		99	70-130			
1,1,2,2-Tetrachloroethane	0.0101	0.0005	mg/L	0.01000		101	70-130			
1,1,2-Trichloroethane	0.0098	0.0010	mg/L	0.01000		98	70-130			
1,1-Dichloroethane	0.0102	0.0010	mg/L	0.01000		102	70-130			
1,1-Dichloroethene	0.0111	0.0010	mg/L	0.01000		111	70-130			
1,1-Dichloropropene	0.0111	0.0020	mg/L	0.01000		111	70-130			
1,2,3-Trichlorobenzene	0.0100	0.0010	mg/L	0.01000		100	70-130			
1,2,3-Trichloropropane	0.0086	0.0010	mg/L	0.01000		86	70-130			
1,2,4-Trichlorobenzene	0.0097	0.0010	mg/L	0.01000		97	70-130			
1,2,4-Trimethylbenzene	0.0112	0.0010	mg/L	0.01000		112	70-130			
1,2-Dibromo-3-Chloropropane	0.0081	0.0050	mg/L	0.01000		81	70-130			
1,2-Dibromoethane	0.0096	0.0010	mg/L	0.01000		96	70-130			
1,2-Dichlorobenzene	0.0103	0.0010	mg/L	0.01000		103	70-130			
1,2-Dichloroethane	0.0095	0.0010	mg/L	0.01000		95	70-130			
1,2-Dichloropropane	0.0110	0.0010	mg/L	0.01000		110	70-130			
1,3,5-Trimethylbenzene	0.0111	0.0010	mg/L	0.01000		111	70-130			
1,3-Dichlorobenzene	0.0100	0.0010	mg/L	0.01000		100	70-130			
1,3-Dichloropropane	0.0104	0.0010	mg/L	0.01000		104	70-130			
1,4-Dichlorobenzene	0.0104	0.0010	mg/L	0.01000		104	70-130			
1,4-Dioxane - Screen	0.241	0.500	mg/L	0.2000		120	0-332			
1-Chlorohexane	0.0096	0.0010	mg/L	0.01000		96	70-130			
2,2-Dichloropropane	0.0101	0.0010	mg/L	0.01000		101	70-130			
2-Butanone	0.0494	0.0100	mg/L	0.05000		99	70-130			
2-Chlorotoluene	0.0106	0.0010	mg/L	0.01000		106	70-130			
2-Hexanone	0.0459	0.0100	mg/L	0.05000		92	70-130			
4-Chlorotoluene	0.0107	0.0010	mg/L	0.01000		107	70-130			
4-Isopropyltoluene	0.0102	0.0010	mg/L	0.01000		102	70-130			
4-Methyl-2-Pentanone	0.0476	0.0250	mg/L	0.05000		95	70-130			
Acetone	0.0477	0.0100	mg/L	0.05000		95	70-130			
Benzene	0.0114	0.0010	mg/L	0.01000		114	70-130			
Bromobenzene	0.0101	0.0020	mg/L	0.01000		101	70-130			
Bromochloromethane	0.0100	0.0010	mg/L	0.01000		100	70-130			
Bromodichloromethane	0.0100	0.0006	mg/L	0.01000		100	70-130			
Bromoform	0.0078	0.0010	mg/L	0.01000		78	70-130			
Bromomethane	0.0071	0.0020	mg/L	0.01000		71	70-130			
Carbon Disulfide	0.0113	0.0010	mg/L	0.01000		113	70-130			
Carbon Tetrachloride	0.0097	0.0010	mg/L	0.01000		97	70-130			
Chlorobenzene	0.0100	0.0010	mg/L	0.01000		100	70-130			
Chloroethane	0.0104	0.0020	mg/L	0.01000		104	70-130			

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CK90532 - 5030B										
Chloroform	0.0108	0.0010	mg/L	0.01000		108	70-130			
Chloromethane	0.0122	0.0020	mg/L	0.01000		122	70-130			
cis-1,2-Dichloroethene	0.0109	0.0010	mg/L	0.01000		109	70-130			
cis-1,3-Dichloropropene	0.0103	0.0004	mg/L	0.01000		103	70-130			
Dibromochloromethane	0.0092	0.0010	mg/L	0.01000		92	70-130			
Dibromomethane	0.0102	0.0010	mg/L	0.01000		102	70-130			
Dichlorodifluoromethane	0.0088	0.0020	mg/L	0.01000		88	70-130			
Diethyl Ether	0.0099	0.0010	mg/L	0.01000		99	70-130			
Di-isopropyl ether	0.0118	0.0010	mg/L	0.01000		118	70-130			
Ethyl tertiary-butyl ether	0.0105	0.0010	mg/L	0.01000		105	70-130			
Ethylbenzene	0.0101	0.0010	mg/L	0.01000		101	70-130			
Hexachlorobutadiene	0.0103	0.0006	mg/L	0.01000		103	70-130			
Hexachloroethane	0.0086	0.0010	mg/L	0.01000		86	70-130			
Isopropylbenzene	0.0108	0.0010	mg/L	0.01000		108	70-130			
Methyl tert-Butyl Ether	0.0101	0.0010	mg/L	0.01000		101	70-130			
Methylene Chloride	0.0104	0.0020	mg/L	0.01000		104	70-130			
Naphthalene	0.0100	0.0010	mg/L	0.01000		100	70-130			
n-Butylbenzene	0.0115	0.0010	mg/L	0.01000		115	70-130			
n-Propylbenzene	0.0109	0.0010	mg/L	0.01000		109	70-130			
sec-Butylbenzene	0.0108	0.0010	mg/L	0.01000		108	70-130			
Styrene	0.0102	0.0010	mg/L	0.01000		102	70-130			
tert-Butylbenzene	0.0106	0.0010	mg/L	0.01000		106	70-130			
Tertiary-amyl methyl ether	0.0103	0.0010	mg/L	0.01000		103	70-130			
Tetrachloroethene	0.0075	0.0010	mg/L	0.01000		75	70-130			
Tetrahydrofuran	0.0096	0.0050	mg/L	0.01000		96	70-130			
Toluene	0.0116	0.0010	mg/L	0.01000		116	70-130			
trans-1,2-Dichloroethene	0.0104	0.0010	mg/L	0.01000		104	70-130			
trans-1,3-Dichloropropene	0.0093	0.0004	mg/L	0.01000		93	70-130			
Trichloroethene	0.0102	0.0010	mg/L	0.01000		102	70-130			
Trichlorofluoromethane	0.0110	0.0010	mg/L	0.01000		110	70-130			
Vinyl Acetate	0.0119	0.0050	mg/L	0.01000		119	70-130			
Vinyl Chloride	0.0086	0.0010	mg/L	0.01000		86	70-130			
Xylene O	0.0100	0.0010	mg/L	0.01000		100	70-130			
Xylene P,M	0.0202	0.0020	mg/L	0.02000		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0240		mg/L	0.02500		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0243		mg/L	0.02500		97	70-130			
Surrogate: Dibromofluoromethane	0.0257		mg/L	0.02500		103	70-130			
Surrogate: Toluene-d8	0.0259		mg/L	0.02500		104	70-130			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0098	0.0010	mg/L	0.01000		98	70-130	8	25	
1,1,1-Trichloroethane	0.0099	0.0010	mg/L	0.01000		99	70-130	0.1	25	
1,1,2,2-Tetrachloroethane	0.0099	0.0005	mg/L	0.01000		99	70-130	3	25	
1,1,2-Trichloroethane	0.0106	0.0010	mg/L	0.01000		106	70-130	7	25	
1,1-Dichloroethane	0.0111	0.0010	mg/L	0.01000		111	70-130	9	25	
1,1-Dichloroethene	0.0111	0.0010	mg/L	0.01000		111	70-130	0.5	25	

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CK90532 - 5030B										
1,1-Dichloropropene	0.0114	0.0020	mg/L	0.01000		114	70-130	2	25	
1,2,3-Trichlorobenzene	0.0091	0.0010	mg/L	0.01000		91	70-130	9	25	
1,2,3-Trichloropropane	0.0084	0.0010	mg/L	0.01000		84	70-130	3	25	
1,2,4-Trichlorobenzene	0.0089	0.0010	mg/L	0.01000		89	70-130	9	25	
1,2,4-Trimethylbenzene	0.0109	0.0010	mg/L	0.01000		109	70-130	3	25	
1,2-Dibromo-3-Chloropropane	0.0078	0.0050	mg/L	0.01000		78	70-130	4	25	
1,2-Dibromoethane	0.0092	0.0010	mg/L	0.01000		92	70-130	5	25	
1,2-Dichlorobenzene	0.0104	0.0010	mg/L	0.01000		104	70-130	1	25	
1,2-Dichloroethane	0.0097	0.0010	mg/L	0.01000		97	70-130	1	25	
1,2-Dichloropropane	0.0120	0.0010	mg/L	0.01000		120	70-130	9	25	
1,3,5-Trimethylbenzene	0.0107	0.0010	mg/L	0.01000		107	70-130	4	25	
1,3-Dichlorobenzene	0.0097	0.0010	mg/L	0.01000		97	70-130	2	25	
1,3-Dichloropropane	0.0099	0.0010	mg/L	0.01000		99	70-130	5	25	
1,4-Dichlorobenzene	0.0102	0.0010	mg/L	0.01000		102	70-130	2	25	
1,4-Dioxane - Screen	0.233	0.500	mg/L	0.2000		117	0-332	3	200	
1-Chlorohexane	0.0104	0.0010	mg/L	0.01000		104	70-130	8	25	
2,2-Dichloropropane	0.0102	0.0010	mg/L	0.01000		102	70-130	1	25	
2-Butanone	0.0510	0.0100	mg/L	0.05000		102	70-130	3	25	
2-Chlorotoluene	0.0102	0.0010	mg/L	0.01000		102	70-130	4	25	
2-Hexanone	0.0477	0.0100	mg/L	0.05000		95	70-130	4	25	
4-Chlorotoluene	0.0104	0.0010	mg/L	0.01000		104	70-130	3	25	
4-Isopropyltoluene	0.0102	0.0010	mg/L	0.01000		102	70-130	0.7	25	
4-Methyl-2-Pentanone	0.0505	0.0250	mg/L	0.05000		101	70-130	6	25	
Acetone	0.0474	0.0100	mg/L	0.05000		95	70-130	0.6	25	
Benzene	0.0114	0.0010	mg/L	0.01000		114	70-130	0.09	25	
Bromobenzene	0.0104	0.0020	mg/L	0.01000		104	70-130	4	25	
Bromochloromethane	0.0099	0.0010	mg/L	0.01000		99	70-130	0.9	25	
Bromodichloromethane	0.0105	0.0006	mg/L	0.01000		105	70-130	5	25	
Bromoform	0.0081	0.0010	mg/L	0.01000		81	70-130	4	25	
Bromomethane	0.0068	0.0020	mg/L	0.01000		68	70-130	4	25	B-
Carbon Disulfide	0.0115	0.0010	mg/L	0.01000		115	70-130	2	25	
Carbon Tetrachloride	0.0097	0.0010	mg/L	0.01000		97	70-130	0.1	25	
Chlorobenzene	0.0101	0.0010	mg/L	0.01000		101	70-130	0.3	25	
Chloroethane	0.0102	0.0020	mg/L	0.01000		102	70-130	3	25	
Chloroform	0.0109	0.0010	mg/L	0.01000		109	70-130	1	25	
Chloromethane	0.0118	0.0020	mg/L	0.01000		118	70-130	4	25	
cis-1,2-Dichloroethene	0.0106	0.0010	mg/L	0.01000		106	70-130	3	25	
cis-1,3-Dichloropropene	0.0107	0.0004	mg/L	0.01000		107	70-130	3	25	
Dibromochloromethane	0.0095	0.0010	mg/L	0.01000		95	70-130	3	25	
Dibromomethane	0.0107	0.0010	mg/L	0.01000		107	70-130	4	25	
Dichlorodifluoromethane	0.0088	0.0020	mg/L	0.01000		88	70-130	0.1	25	
Diethyl Ether	0.0111	0.0010	mg/L	0.01000		111	70-130	12	25	
Di-isopropyl ether	0.0117	0.0010	mg/L	0.01000		117	70-130	1	25	
Ethyl tertiary-butyl ether	0.0103	0.0010	mg/L	0.01000		103	70-130	2	25	
Ethylbenzene	0.0105	0.0010	mg/L	0.01000		105	70-130	4	25	

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8260B Volatile Organic Compounds										
Batch CK90532 - 5030B										
Hexachlorobutadiene	0.0092	0.0006	mg/L	0.01000		92	70-130	11	25	
Hexachloroethane	0.0078	0.0010	mg/L	0.01000		78	70-130	9	25	
Isopropylbenzene	0.0109	0.0010	mg/L	0.01000		109	70-130	0.5	25	
Methyl tert-Butyl Ether	0.0103	0.0010	mg/L	0.01000		103	70-130	2	25	
Methylene Chloride	0.0103	0.0020	mg/L	0.01000		103	70-130	1	25	
Naphthalene	0.0097	0.0010	mg/L	0.01000		97	70-130	3	25	
n-Butylbenzene	0.0109	0.0010	mg/L	0.01000		109	70-130	5	25	
n-Propylbenzene	0.0107	0.0010	mg/L	0.01000		107	70-130	2	25	
sec-Butylbenzene	0.0102	0.0010	mg/L	0.01000		102	70-130	5	25	
Styrene	0.0099	0.0010	mg/L	0.01000		99	70-130	3	25	
tert-Butylbenzene	0.0105	0.0010	mg/L	0.01000		105	70-130	1	25	
Tertiary-amyl methyl ether	0.0104	0.0010	mg/L	0.01000		104	70-130	1	25	
Tetrachloroethene	0.0080	0.0010	mg/L	0.01000		80	70-130	7	25	
Tetrahydrofuran	0.0114	0.0050	mg/L	0.01000		114	70-130	17	25	
Toluene	0.0112	0.0010	mg/L	0.01000		112	70-130	4	25	
trans-1,2-Dichloroethene	0.0105	0.0010	mg/L	0.01000		105	70-130	1	25	
trans-1,3-Dichloropropene	0.0099	0.0004	mg/L	0.01000		99	70-130	6	25	
Trichloroethene	0.0104	0.0010	mg/L	0.01000		104	70-130	2	25	
Trichlorofluoromethane	0.0113	0.0010	mg/L	0.01000		113	70-130	3	25	
Vinyl Acetate	0.0116	0.0050	mg/L	0.01000		116	70-130	3	25	
Vinyl Chloride	0.0090	0.0010	mg/L	0.01000		91	70-130	5	25	
Xylene O	0.0104	0.0010	mg/L	0.01000		104	70-130	4	25	
Xylene P,M	0.0205	0.0020	mg/L	0.02000		102	70-130	1	25	
Surrogate: 1,2-Dichloroethane-d4	0.0234		mg/L	0.02500		93	70-130			
Surrogate: 4-Bromofluorobenzene	0.0243		mg/L	0.02500		97	70-130			
Surrogate: Dibromofluoromethane	0.0245		mg/L	0.02500		98	70-130			
Surrogate: Toluene-d8	0.0255		mg/L	0.02500		102	70-130			

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill ESS Laboratory Work Order: 19K0002

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 19K0002

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: ATC Group Services - KPB/HDM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19K0002
Date Received: 11/1/2019
Project Due Date: 11/8/2019
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 0.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA
13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	408225	Yes	No	Yes	VOA Vial - HCl	HCl	
01	408226	Yes	No	Yes	VOA Vial - HCl	HCl	
01	408227	Yes	No	Yes	VOA Vial - HCl	HCl	
01	408231	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
02	408222	Yes	No	Yes	VOA Vial - HCl	HCl	
02	408223	Yes	No	Yes	VOA Vial - HCl	HCl	
02	408224	Yes	No	Yes	VOA Vial - HCl	HCl	
02	408230	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
03	408219	Yes	No	Yes	VOA Vial - HCl	HCl	
03	408220	Yes	No	Yes	VOA Vial - HCl	HCl	
03	408221	Yes	No	Yes	VOA Vial - HCl	HCl	
03	408229	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
04	408216	Yes	No	Yes	VOA Vial - HCl	HCl	
04	408217	Yes	No	Yes	VOA Vial - HCl	HCl	
04	408218	Yes	No	Yes	VOA Vial - HCl	HCl	
04	408228	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
05	408215	Yes	No	Yes	VOA Vial - HCl	HCl	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: ATC Group Services - KPB/HDM

ESS Project ID: 19K0002

Date Received: 11/1/2019

Are all Hex Chrome stickers attached? Yes / No / NA

Are all QC stickers attached? Yes / No / NA

Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [signature] Date & Time: 11/1/19 1011

Reviewed By: [signature] Date & Time: 11/1/19 1747

Delivered By: [signature] 11/1/19 1747

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # ~~191002~~ 191L0002

Turn Time: 5-Day Rush:

Regulatory State: RI GA Groundwater Objectives

Reporting Limits: RI GA Groundwater Objectives

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☐ Remediation

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
ATC Group Services, LLC	3010000238	Former Portsmouth Landfill

Contact Person	Address		
Stephen Gautie	400 Reservoir Ave., Suite ~~26~~ 3D		
City	**State**	**Zip Code**	**PO #**
Providence	Rhode Island	02907	3010000238
Telephone Number	**FAX Number**	**Email Address**	
(401) 639-4272		stephen.gautie@atcgs.com	

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOC by 8260	Total Sb, As, Ba, Be, Cd, Cr	Total Co, Cu, Pb, Ni, Se, Ag	Total Tl, V, Zn
1	10-30-19	~~1129~~ 1100 KS 10-30-19	Grab	Ground Water	MW-1	X	X	X	X
2		~~1233~~ 1143 10/30/19	Grab	Ground Water	MW-2	X	X	X	X
3		1233	Grab	Ground Water	MW-3	X	X	X	X
4		1129	Grab	Ground Water	MW-4	X	X	X	X
5					Trip Blank	X			

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

	V	P	P	P
	2	4	4	4
Number of Containers:	13	4*		

Laboratory Use Only

Cooler Present: Yes

Seals Intact: Yes

Cooler Temperature: 0.1 °C

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space

*Total Metals: one container per sample for all listed 15 metals.

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10-30-19	11/1/19 9:34	11/1/19 16:49	11/1/19 1649
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ESS Laboratory

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185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # ~~19L0002~~ 19L0002

Turn Time: 5-Day Rush:

Regulatory State: RI GA Groundwater Objectives

Is this project for any of the following?:
☐ MA-MCP ☐ CT-RCP ☐ RGP ☐ Remediation

Reporting Limits: RI GA Groundwater Objectives

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
ATC Group Services, LLC	3010000238	Former Portsmouth Landfill

Contact Person	Address
Stephen Gautie	400 Reservoir Ave., Suite ~~26~~ 3D

City	State	Zip Code	PO #
Providence	Rhode Island	02907	3010000238

Telephone Number	FAX Number	Email Address
(401) 639-4272		stephen.gautie@atcgs.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOC by 8260	Total Sb, As, Ba, Be, Cd, Cr	Total Co, Cu, Pb, Ni, Se, Ag	Total Tl, V, Zn
1	10-30-19	~~1100~~ 1129 KS 10-30-19	Grab	Ground Water	MW-1	X	X	X	X
2		1143 ~~1235~~ 1215 10/30/19	Grab	Ground Water	MW-2	X	X	X	X
3		1233	Grab	Ground Water	MW-3	X	X	X	X
4		1129	Grab	Ground Water	MW-4	X	X	X	X
					Trip Blank	X			

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*

	V	P	P	P
	2	4	4	4
Number of Containers:	13	4*		

Laboratory Use Only

Cooler Present: ✓

Seals Intact: ✓

Cooler Temperature: 0.1 °C

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space

*Total Metals: one container per sample for all listed 15 metals.

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10-30-19	11/1/19 9:34	11/1/19 16:49	11/1/19 1649
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

19K0002

~~170886~~

CONSTITUENTS FOR DETECTION MONITORING (1)

Common name (2)	CAS RN (3)
Inorganic Constituents:	
(1) Antimony	(Total)
(2) Arsenic	(Total)
(3) Barium	(Total)
(4) Beryllium	(Total)
(5) Cadmium	(Total)
(6) Chromium	(Total)
(7) Cobalt	(Total)
(8) Copper	(Total)
(9) Lead	(Total)
(10) Nickel	(Total)
(11) Selenium	(Total)
(12) Silver	(Total)
(13) Thallium	(Total)
(14) Vanadium	(Total)
(15) Zinc	(Total)

+ 8260